(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 22 November 2001 (22.11.2001)

(10) International Publication Number WO 01/88900 A3

- (51) International Patent Classification7: G10H 3/12, 1/00
- (21) International Application Number: PCT/JB01/00982
- (22) International Filing Date: 15 May 2001 (15.05.2001)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 09/\$70,679

15 May 2000 (15.05.2000)

- CREATIVE TECHNOLOGY LTD. (71) Applicant: [SG/SG]; 31 International Business Park, Creative Resource, Singapore 609921 (SG).
- (72) Inventor: LAROCHE, Jean; 131 Chrystal Terrace, Santa Cruz, CA 95060 (US).
- (74) Agents: FROST, Alex, John et al.; Boult Wade Tennant. Verulam Gardens, 70 Gray's Inn Road, London WC1X 8BT (GB).

- (81) Designated States (national): AE, AG, AL, AM, AT, AU. AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO. CR, CU. CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, OD, GE, GH, GM, HR, HU, ID, IL. IN, IS. JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MV, MX. MZ, NO, NZ, PL, PT, RQ, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA. 11G, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH. GM. KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM. GA, GN, GW, ML, MR, NE, SN, TD, TQ).

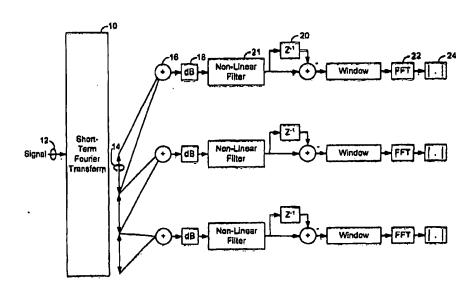
Published:

with international search report

(88) Date of publication of the international search report: 23 May 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR IDENTIFYING AUDIO CONTENT



(57) Abstract: A fingerprint of an audio signal is generated based on the energy content in frequency subbands. Processing techniques assure a robust identification fingerprint that will be useful for signals altered subsequent to the generation of the fingerprint.

The fingerprint is compared to a detabase to identification. The fingerprint is compared to a database to identify the audio signal.

01/88900 A3

INTERNATIONAL SEARCH REPORT

into 'onei Application No

			LCIVIE GIV	7 00362					
A, CLASSI IPC 7	FICATION OF SUBJECT MATTER G10H3/12 G10H1/00								
According to	o International Patent Classification (IPC) or to both national classific	callon and IPC							
	GRANCHED								
Minimum do IPC 7	Minimum documentation exarched (classification system followed by classification symbols)								
	lent Inelxe ent of militainungob muminim nahl rentip bentraee noti			·					
l	lata base consulted during the international search (name of data by	ase and, where practica	i, search terms used) ~					
C. DOCUM	ENTS CONSIDERED TO BE RELEVANT								
Category *	Citation of document, with Indication, where appropriate, of the re	elevani passages		Relevant to claim No.					
A	US 5 210 820 A (KENYON STEPHEN C 11 May 1993 (1993-05-11)		1-10						
	column 4, line 39 -column 5, lin column 9, line 3 -column 10, lin column 11, line 27 - line 59 column 15, line 26 - line 34; fi 2,5,12								
A	PFEIFFER S ET AL: "AUTOMATIC AU CONTENT ANALYSIS" PROCEEDINGS OF ACM MULTIMEDIA 96		1-10						
	NOV. 18 ~ 22, 1996, NEW YORK, AC 18 November 1996 (1996-11-18), 21-30, XP000734706								
	ISBN: 0-89791-871-1 page 23, left-hand column, line -right-hand column, line 33								
		-/							
X Furt	her documents are listed in the continuation of box C.	X Patent family	betzil eta iradmem v	in annex.					
	ategories of cited documents :	"T" later document pul	blished after the into	mational filing date					
consta	ent defining the general state of the art which is not bred to be of particular relevance	cli od to understai Invention	nd the principle or the	eary underlying the					
filing c	document but published on or atter the international date ant which may throw doubts on priority claim(s) or	cannot be consid	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone						
which citatio	is clied to establish the publication date of another in or other special reason (as apecified) ent reterring to an oral disclosure, use, oxhibition or		lared to involve an in	claimed invention ventive step when the one other such docu-					
other means 1P* document published prior to the International Illing date but In the art.				us to a person stilled					
	han the priority date claimed actual completion of the infornational search		*A' document member of the same patent family Date of mailing of the international search report						
1	1 December 2001	18/12/2	2001						
Name and	mailing addross of the ISA European Patent Office. P.S. 5816 Patentisan 2	Authorized officer							
	NL - 2780 MV Rijawija Tpl. (+31-70) 340-2040, Tx. 31 651 epo nl. Fax: (+31-70) 340-3016	Pulluard, R							

Form PCT/ISA/210 (augund shoot) (July 1992)

INTERNATIONAL SEARCH REPORT

Inter 'onel Application No
PC1/IB 01/00982

	LCIVIR OTVOORE							
	ustion) QOCUMENTS CONSIDERED TO SE RELEVANT							
Category	Citation of document, with Indication where appropriate, of the relevant passages	Relevant to claim No.						
A	EP 0 986 046 A (LUCENT TECHNOLOGIES INC) 15 March 2000 (2000-03-15) paragraph '0006! paragraph '0013! paragraph '0021! - paragraph '0026!; figure 1	1-10						
	## US 5 536 902 A (WOLD ERLING ET AL) 16 July 1996 (1996-07-16) column 9, line 46 -column 10, line 37 column 12, line 2 - line 16 column 17, line 49 -column 18, line 17 column 22, line 9 - line 39; figure 2	1-10						

Form PCT/ISA/210 (continuation of second sneet) (July 1992)

INTERNATIONAL SEARCH REPORT

iformation on potent family mombers

inter long Application No PCT/IB 01/00982

died ju seaus) tebat Pateut doarment		Publication date		wewper(e) Bateut (alud)		Publication date
US 5210820	A	11-05-1993	ΑŢ	142815	T	15-09-1996
•			ÇA	2041754	A1	03=11-1991
			ÐΕ	69122017	D1	17-10-1996
			DE	69122017	T2	10-04-1997
		•	EP	0480010	A1	15=04-1992
			EŞ	2091328	T3	01=11=1996
			HĶ	133697	A	24=10=1997
			JР	5501166	T	04-03-1993
			JP	3130926	B2	31-01-2001
			WO	9117540	A1	14-11-1991
EP 0986046	Α	15-03-2000	ĘΡ	0986046	A1	15-03-2000
		, ,	JР	2000194384	A	14=07=2000
US 5536902	Α	16-07-1996	JP	2906970	B2	21-06-1999
	••	W	ĴΡ	7325583		12-12-1995

Form PCTASA/210 (patent family annex) (July 1992)